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ABSTRACT

The 1968-69 Experienced Teacher Fellowship Program (ExTFP) in industrial arts was designed to orient and upgrade 24 urban teachers for a broad-base industrial arts program as described in the Galaxy Approach for Occupational Education. The program was organized to: (1) provide in-depth courses in technical areas, (2) provide short-term intensive field experiences, (3) extend learning processes, (4) provide familiarity with sociological factors, (5) develop course materials, (6) evaluate the adequacy and quality of preparation, (7) experiment with and field test innovative methods, and (8) provide full-time summer industrial experience. The group of 24 fellows was divided into two equal groups, one to study industrial materials and processes, while the other group concentrated on energy and propulsion systems. Evaluation instruments at the end of each term indicated a strongly positive reaction from faculty and participants. A follow-up evaluation will place special emphasis on their curriculum development, increased leadership activities within the school and state, and any change in position. (GR)

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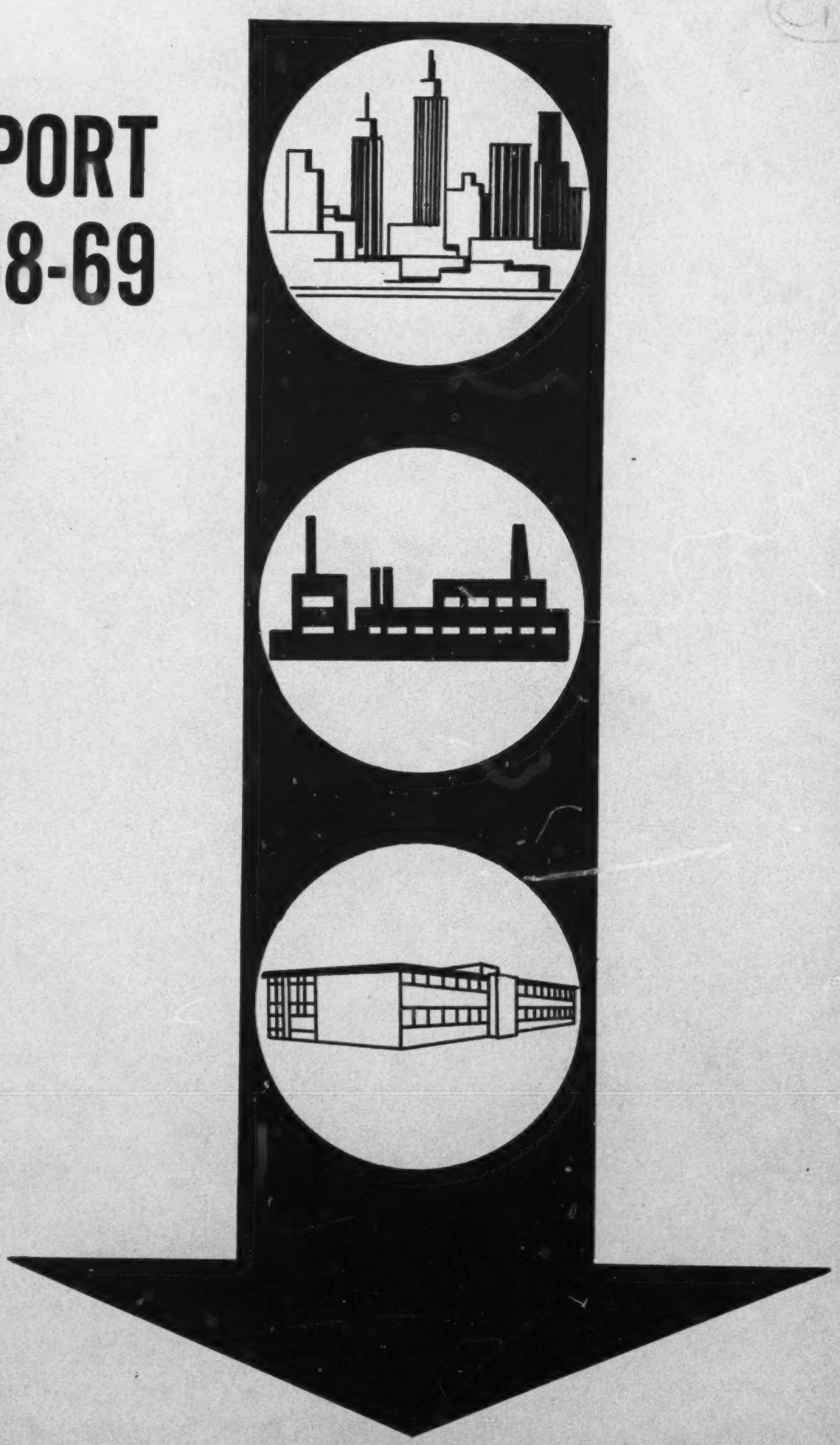
FINAL REPORT
1968-69



Experienced Teacher Fellowship Program in Industrial Education

Wayne State University

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FINAL REPORT

1968-69

EXPERIENCED TEACHER FELLOWSHIP PROGRAM

Prepared by:

Harold S. Resnick
and
Leslie H. Cochran
Associate Directors

and

Earl S. Mills
Industrial Coordinator

Roy W. Krause
Public Schools Coordinator

Under the Direction of:

G. Harold Silvius
Project Director

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

This report is based on the 1968-69 Experienced Teacher Fellowship Program (ExTFP)in industrial arts that was supported by the U. S. Office of Education, as authorized under Title V, Part C, P. L. 89-329, Higher Education Act of 1965.

The project had the cooperation and support of the U. S. Office of Education, the Detroit Public Schools, the Detroit area industries, and Wayne State University. This project was conducted from September, 1968 to June, 1969.

The ExTFP was designed to provide an opportunity for twenty-four experienced industrial arts teachers to pursue graduate study in two occupational clusters of the Galaxy Plan. Emphasis was placed so that each Fellow would: (1) become competent in those aspects of American industry which embrace either Industrial Materials and Processes or Energy and Propulsion Systems, and (2) develop, field test, and evaluate the curriculum materials needed for an application of these evolving technologies in the school systems.

At the culmination of the program, each Fellow completed the requirements for the M.Ed at Wayne State University. The participants of this program represented seventeen states including Hawaii and Puerto Rico. Each Fellow received a tax-free fellowship of $4,000 and a $600 stipend for each dependent, as well as tuition for graduate study at WSU.

The project staff acknowledges contributions of Dean J. W. Menge, College of Education, Wayne State University; Dean John W. Childs, College of Education, Wayne State University; Dr. Norman Drachler, Acting Superintendent, Detroit Public Schools; Mr. Carl Turnquist, Divisional Director of Vocational Education, Detroit Public Schools; Dr. Paul Manchak, Assistant Chief, Program Review and Implementation Branch (East), USOE; Mr. Clifford M. VanBuskirk, Grants and Contract Officer, WSU; and the instructional staff who were associated with this project.

H. S. Resnick
L. H. Cochran

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PART I. INTRODUCTION

GENERAL DESCRIPTION

There is considerable agreement among teachers of occupational education that curriculum innovations and implementation are necessary to keep in focus with industrial development, processes, and problems. Since there has been little opportunity for practicing teachers to acquire the competencies and experiences to introduce newer industrial practices in the curriculum, this program was developed. It was designed to orient and upgrade twenty-four teachers for a broad-base industrial arts program as described in the Galaxy Approach. Emphasis was placed on two of the four major clusters: (a) Industrial Materials and Processes, and (b) Energy and Propulsion Systems. The Galaxy Plan for Carrer Preparation is now being advocated for comprehensive high schools in Detroit and other public school systems.

This program was presented for the first time at WSU during the 1967-68 academic year. More than eight hundred individuals applied for acceptance to the project. The 1968-69 ExTFP, summarized in this report, received a similar number of requests, with a greater focus on selecting teachers from the urban areas of the United States. It was hoped that this program would provide these teachers with the skills needed to prepare and present a more relevant broad-base approach for occupational education to the students in inner-city schools. The overall purpose, then, was to develop a model program designed to orient, upgrade, and prepare a nucleus of twenty-four urban teachers in evolving technologies for a broad-base industrial arts program as described in the Galaxy Approach for Occupational Education at the comprehensive high school level.

In an attempt to attain this overall purpose, six major objectives were developed to guide the program.

1. To provide selected teachers with in-depth courses in the evolving technical areas of Industrial Materials and Processes or Energy and Propulsion Systems.

2. To provide supporting short-term intensive instructional programs through industrial field experiences with selected industries and through the program at the WSU Applied Management and Technology Center.

3. To extend the participants understanding of the learning process so as to enable them to work more effectively with multiple-ability classes.

4. To provide participants an opportunity to become more familiar with the sociological factors that now need to be considered by educators in the urban schools.

5. To direct and assist the Fellows in developing course materials essential for the implementation of the two clusters of the Galaxy Plan.

6. To evaluate the adequacy and quality of preparation in the major area with consideration for:
   - technical competence.
   - teaching competence.
   - leadership development.

7. To provide for experimentation with innovative methods and the field testing of such methods with youth in inner-city schools.

8. To provide, as an option, a full-time industrial experience during the 1969 summer period in one of the two occupational job clusters, at the conclusion of the formal program.

Basic Structure

This program was organized to provide for the fulfillment of the eight specific objectives. To accomplish these objectives, the group of twenty-four Fellows were divided into two equal groups. Twelve Fellows specialized in the broad area of Industrial Materials and

Processes, and the other twelve concentrated on Energy and Propulsion Systems.

The courses included in the Plan of Work leading to a Master's degree are reported in Schedules 1 and 2. Of the eleven scheduled courses, eight were taken by the entire group. The field experiences (through IED 6170) and supporting (cognate) subjects were specifically related to the concentration for each group.

	Major	Professional Core	Cognate
Fall Quarter	IED 7187 -- (4) IED 6170 -- (4)	EDP 5740 -- (4)	I T 5762 -- (4)
Winter Quarter	IED 6187 -- (4) IED 6170 -- (4)	EDS 6628 -- (3)	M E 0511 -- (4)
Spring Quarter	IED 6185 -- (6) IED 7189 -- (4)	EHP 7601 -- (3)	(An appropriate elective in non-education)--(4)
	TOTAL 26	10	12

Schedule 1. -- Plan for Concentration in Industrial Materials and Processes.

	Major	Professional Core	Cognate
Fall Quarter	IED 7187 -- (4) IED 6173 -- (4)	EDP 5740 -- (4)	I T 5762 -- (4)
Winter Quarter	IED 6187 -- (4) IED 5175 -- (4) IED 6170 -- (4)	EDS 6628 -- (3)	
Spring Quarter	IED 6185 -- (6) IED 7189 -- (4)	EHP 7601 -- (3)	(An appropriate elective in non-education)--(4)
	TOTAL 30	10	8

Schedule 2. -- Plan for Concentration in Energy and Propulsion Systems.

In addition, the professional core courses and the methods courses were taught on an en bloc arrangement and tailored to the needs of the Fellows. For example, in the three professional core courses special sessions were devoted to discussing the implication of these areas in industrial arts education. The two courses dealing with psychology and sociology were especially directed toward the disadvantaged in urban areas. The philosophy course considered the implication of the demands of new power groups within the philosophical framework of our American culture. The methods and curriculum courses (IED 6187 and IED 6185) were especially planned to equip the Fellows with the necessary instructional materials and methods for implementing the two occupational clusters in the Galaxy Plan. A new industrial education

course (IED 6187) was conducted with time allocated for study, experimentation, development, and evaluation of materials produced through field testing in the Detroit Public Schools. This field testing utilized some of the most recent methodological procedures, such as micro-teaching, role playing, and simulation. Organizing Course Materials (IED 6185) and the Terminal Masters Seminar (IED 7189) were team taught and modified to provide greater student participation. Specifically, the Fellows had the responsibility of selecting and contacting guest lecturers who discussed trends and innovative curriculum projects in industrial arts. These presentations provided an opportunity for the Fellows to examine and evaluate what is now being advocated for industrial education by selected leaders throughout the nation.

The instructional program provided for joint activities with representatives of industry, contacts at the WSU Applied Management and Technology Center, and work with selected teachers from the inner-city schools in Detroit. The selected schools were used to strengthen the Fellows' technical background in current industrial practices. This was supplemented by formal courses at the Applied Management and Technology Center. Later, this technical information was integrated into experimental units for instruction that were field tested in the Detroit Public Schools.

Another aspect which had considerable impact on the program was the provision for a special study center. This facility was used for many formal and social activities. It facilitated numerous professional discussions and provided an operational base for meetings, discussion groups, and study areas.

PART II. EVALUATION

PRE-PROGRAM ACTIVITIES

The success of an in-service or pre-service program depends, to a large extent, on the amount of pre-planning and organization that precedes the formal activities. For this reason, considerable emphasis was placed on this aspect of the ExTFP. There were, of course, numerous functions carried out by staff members in the period from notification of the grant to the arrival of the participants. These pre-planning activities were grouped under these headings:

- The Announcement of ExTFP
- Selection of Participants
- Inquiries and Communications
- Orientation Meetings

The Announcement of ExTFP

Two major forms of communication were used to inform industrial education teachers, directors, teacher educators, and national leaders of the program at WSU. First, news releases were sent to the national journals and associations in the field. A brief description, objectives, contact address, and other related information was included in each of these articles.

Secondly, a descriptive brochure, (see Appendix A-5), was developed and sent to industrial educators throughout the nation. The brochure was designed to serve two basic purposes: 1) to announce the Fellowship program, and 2) to provide a request for an application form.

The number of copies and the distribution sources for the brochure were as follows:

9,978 -- Standard Metropolitan Areas in the U.S.
(The following break-down was used for distribution)

a) Cities 50,000 to 100,000 (8 copies to 386 cities)
b) Cities 100,001 to 500,000 (20 copies to 137 cities)
c) Cities 500,001 to 1,000,000 (75 copies to 26 cities)
d) Cities over 1,000,000 (200 copies to 11 cities)

476 -- Industrial Teacher Education Institutions (2 copies)

100 -- State Directors of Industrial Education (2 copies)

104 -- First-Rank Applicants for the 1967-68 ExTFP

100 -- Selected Detroit Public School Teachers

100 -- Selected WSU Faculty

500 -- Distributed at State and National Professional Meetings

175 -- Miscellaneous (request for additional copies)

11,533

Based upon this breadown over ten thousand brochures were sent to teachers and directors of industrial education in the major metropolitan areas. While this seems to be a significant number, it was found that many of these brochures never reached individual teachers in many of the inner-city schools. It is therefore recommended in future programs focusing on inner-city problems that attempts be made to contact individual teachers and/or schools rather than going through the administration hierarchy of the school systems.

Selection of the Participants

As a result of the broad distribution of brochures approximately 835 inquires by mail, telephone, or in person were received. These represented nearly all of the major metropolitan areas in the U.S. A total of 760 application packets were sent to prospective participants.

A selection team composed of departmental staff, high school teachers, and participants in the 1967-68 ExTFP was used to evaluate the 226 completed application packets,(see Appendix A-3). It was found that involving the Fellows in the on-going project was a particularly meaningful experience. for it provided further involvement for the Fellows, additional insight for the staff, and an opportunity for substantial professional growth on the part of the Fellows.

By tabulating the data on the Fellowship Analysis Form (Appendix A-3), seventy-one first-rank applicants were identified. In arriving at this selected group, it was found that the applicant's transcripts, recommendations, and autobiographical statement were most helpful. The four hundred word autobiographical statement provided considerable insight into the individual's ability to write, organize, and present his thoughts. These, of course, are extremely important qualities in completing a graduate degree in a Fellowship Program.

A point system was used to select the original twenty-four participants and the eight alternates. These men reprented seventeen states and Puerto Rico. Two prospective participants were unable to accept because of other commitments, and thus, the final group (see Appendix A-1) represented metropolitan areas in fifteen states and Puerto Rico as illustrated in Figure 1.

Inquires and Communication

One of the most important aspects of pre-program activities is the communication that transpires between the staff and prospective participants prior to their arrival on campus. To follow up personal inquiries of the selected Fellows, a staff member was assigned to coordinate and respond to these questions. This resulted in descriptive materials, news notes, and personal letters

Figure 1

GEOGRAPHICAL REPRESENTATION ACCORDING TO STATES OF THE 1968-69 ExTFP FELLOWS

specifically designed to orient the Fellows to the proposed program. Materials and responses to all questions were sent on a bi-monthly basis to the Fellows. It was found that this technique was extremely beneficial as it provided further insight into the program and made the Fellows feel they were a part of the total program. In this way, adjustments were made also to more adequately meet the individual needs of the Fellows and their dependents.

Typical items sent to the Fellows during this period included an abstract of the program, housing requirement inventory, guides to the city and surrounding areas, listing of the Fellows, form for a newspaper release, and several question and answer sheets. The reaction of the Fellows to this form of communication was extremely gratifying.

There were a number of personal contacts with the Fellows prior to the formal starting of the program. Staff members devoted considerable blocks of time to acquainting the Fellows to the city, locating housing, individual counseling, and participating as a group in other social activities. Again, it was found that this informal approach greatly stimulated the Fellows and set the stage for the launching of the program.

Orientation Meetings

Two orientations were held in the early part of the program to assist the Fellows in their understanding of the project and to provide an opportunity for the families to meet on a social basis. The first of these was a more formal session for the Fellows and staff where the following items were presented and discussed:

—Fellow and Staff Introductory
—Rationale of the Project
—Objectives for the Program

—Organization Structure
—Class Schedules
—Questions and Answer

The Fellows reactions to this session were highly positive. Their evaluation revealed that an even greater orientation period would have been beneficial in the development of a proper perspective so that the Fellows could see how each activity contributed to the overall goals for the program.

The second session was designed to provide an opportunity for the staff, Fellows, and their families to meet socially. Approximately 125 persons were present for this occasion. This informal atmosphere was welcomed among the group as it promoted numerous discussion, plans for social activities and insights into the interests and backgrounds of the group.

The project staff were of the opinion that the informal social and the more formal meeting contributed greatly to the successful beginning of the project. The exchange of ideas, and the answering of specific questions, fostered a better comprehension of the proposed program.

INSTRUCTIONAL INNOVATIONS

The development, evaluation, and refinement of instructional materials, teaching techniques, and research projects was emphasized throughout the academic year. Materials and techniques gained as a result of the industrial experiences also were given prominent attention.

There was a concerted effort to develop new materials resulting from broadening experiences through technical courses, industrial contacts, and teaching experiences in inner-city comprehensive high schools. As a result of technical courses related to a specific occupational cluster, such as electrical discharge machining for the Fellows in Industrial Materials and Processes and energy sources for those in Energy and Propulsion, they were able then to infuse these new technical concepts into the instructional materials prepared for classroom purposes. For example, D. Brent Stephens developed individual learning packages for an introductory course in fluid power, and Nicasio Cruz Capeles developed an instructional unit for layout tools in woodworking for junior high schools in Puerto Rico. These packages incorporated a curriculum theory espousing behavioral objectives, pre and post testing, and instructional design sufficiently flexible to meet the needs of each student's cognitive learning style.

Desirable outcomes stemming from the industrial contacts included a greater awareness of occupational information pertaining to technological advances and instructional methodologies employed by industry. This information was incorporated into the instructional materials developed for

classroom purposes. The Fellows considered their industrial contacts to be a very necessary and a desirable aspect of their technical and teaching competencies. The experiences gained in both technical courses and industrial contacts served as the preparatory steps for the inclusion and development of instructional materials for classroom use. To illustrate, the twelve Fellows in Materials and Processes were motivated by an Industrial Plastics Course to produce a sound-sync set of slides describing the various aspects of the plastics industry, and its related occupations. Experiences of this type gave the Fellows the opportunity to integrate their newly learned instructional technology skills with their updated technical competencies.

Newly developed materials were first field tested in micro-teching situations, evaluated, and refined for classroom purposes. Selected critic teachers from Detroit's inner-city high schools served to further refine the innovative materials. The micro-teaching sessions were conducted on the WSU campus and provided the Fellows actual work sessions with inner-city youth. The Fellows were particularly impressed with the opportunity to work with these youth and apply some of the theories promulgated in their psychology and sociology courses.

Representative examples of materials developed as a result of these experiences in technical courses, industrial contacts, and the public schools were compiled in a set of packages for the Fellows to use in implementation at their home schools. These materials were desgined to: (1) provide a nucleus of structured content and teaching

guides within the two occupational clusters, and (2) provide available resource materials for a broad-based approach to occupational education.

The Fellows felt that the en bloc treatment provided many opportunities to learn from one another's background, this approach was greatly facilitated by the common courses, their other group experiences, and the designated facility. However, the Fellows also appreciated the opportunity for elective courses to meet their individual needs. These contacts with other graduate students provided considerable insight in developing an approach for working with inner-city youth.

The observations made by the Fellows concerning the values of the instructional innovation phase of this project were as follows:

1. The intergration of all courses to meet common goals of the program provided an overlapping effect that enabled each Fellow to meet all requirements within the framework of his desired outcomes.

2. Experiences in inner-city teaching situations provided insights into the wide range of student ability and interest, and focused on the need for innovative instructional materials and teaching techniques.

3. The specific skills developed in the area of instructional technology opened new vistas in the development of possible learning packages to meet the needs of youth in a highly urbanized technological society.

4. The encouragement of team efforts made use of the individual strengths of the Fellows and Staff. This technique lends itself well to classrooms situations where a wide range of pupil abilities and interests exist.

5. The materials developed, evaluated, and refined, under the direction of the project staff, provides a sound base for revising and implementing the "cluster concept" to meet the needs of each community.

UNIQUE FEATURES OF THE PROGRAM

The Role of Industry

The cooperation of industry was secured prior to the planning of the proposal for the Experienced Teacher Fellowship Program. Wayne State University, located in the heart of an industrial metropolitan center, has developed extensive liaison and interaction with many of the industrial plants.

Several arrangements were made with industries in the Detroit area to enrich the ExTFP: tours of plants were arranged to study the problems of management, production, and labor which related to Industrial Materials and Processes or Energy and Propulsion Systems. These tours were arranged with the management and technical personnel, with specific requests for viewing and discussing industrial aspects pertinent to the ExTFP.

It was observed that there were many excellent sessions held between the Fellows and technical personnel which enhanced the value of the tours.

Tours were made to the following plants:

F. Joseph Lamb Company
Detroit Diesel Engine Division of G. M. Corporation
General Motor Technical Center
Ford Motor Company
Uniroyal Tire Company
Enrico Fermi Atomic Plant
Wyandotte Chemical Company
California Computer Products (at Ford Motor Company
International Business Machines (IBM)

The following outline summarizes the activities and the specific information covered by the plant tours.

1. Employment

    a. Procedures
    b. Problems
    c. Trends

        1. Unskilled
        2. Semi Skilled
        3. Skilled
        4. Technical
        5. Professional

    d. Employee Relations

2. Manufacturing

    a. Automotive
    b. Tool and Die
    c. Special Equipment
    d. Tires

3. Research Development

    a. Welding
    b. Steel
    c. Plastic
    d. Engine Design

4. Total Complex

    a. Management
    b. Sales
    c. Engineering
    d. Manufacturing

5. Special

    a. Foundry
    b. Glass
    c. Electrical
    d. Chemical

Another arrangement made with industries provided for the use of their plant schools to provide field experiences for technical development. The Fellows concentrating in Industrial Materials and Processes attended three industrial schools. During the first week in these schools they attended the IBM school for basic computer programming and educational implications.

During the second week in these industrial schools they participated in the Hobart Welding school where they were able to combine theory and practices to develop skills in the welding area. The third and final week in industrial training was at the Ford Motor Company training school, where the Fellows concentrated on basic manufacturing processes common to most industries.

The Fellows specializing in Energy and Propulsion Systems went to the Vickers Hydraulics School for a period and to Miller Fluid Power Institute for another week. Both of these schools were conducting regular courses for personnel from the industries which provided an additional contact with technicians from the field.

The most significant contributions made by these plant schools to the ExTFP were that the Fellows: 1) received up-to-date instruction in the respective technology from practitioners of industry; and 2) had an opportunity to study and exchange ideas with sales personnel, servicemen, technicians, engineers, and management which permitted them to enhance their industrial contacts and to acquire much helpful occupational information.

The third arrangement with industry employed in this program was the provision to bring experts and consultants in to perform demonstrations and make presentations on the implication of their equipment in education. Hundreds of pamphlets and technical reports were given to the Fellows by numerous agencies throughout the Detroit area.

The Role of the University

The project staff perceived its role to be one of infusing new concepts into the instructional program. While the Fellows were acquiring technical competence in one of the two occupational clusters, they were developing skills in research techniques, writing abilities, organizing course materials, instructional technology, and teaching methods.

This was accomplished through the combined efforts of the organizational divisions at WSU, including the College of Engineering, Department of Instructional Technology, Applied Management and Technology Center, and other professional education departments.

The involvement with these selected divisions of the University assisted in the achievement of goals that were established for the program. This was furthered through the cooperative planning and structuring of courses. Several courses containing common goals, course objectives and requirements were established. The Fellows were so pleased with this arrangement that some continued their work on an independent study basis to complete joint projects promoted through these courses. A concerted effort was made to focus on current issues, instructional methods, and curriculum materials to implement the Galaxy Plan. The uniqueness of this approach was apparent in the creation of special courses and sections for the Fellows with personnel assisting from several of the organizational divisions of the University.

The Role of the Detroit Public Schools

The success of a venture such as the ExTFP is dependent upon professional resources that can be mobilized. The expertise of the faculty was not solely relied upon to focus on the goals of the program. In a coordinated effort, the joint contributions of personnel from the Detroit Public Schools and the project staff strengthened the working relations and the cooperative spirit of the two institutions. This close liaison contributed to a more meaningful in-service experience for the Fellows. The presence of a large public school system in the immediate area of the university was indeed one of the deciding factors in the decision to accept responsibility for operating the project. It was helpful that the Department enjoyed a close contact with the Detroit Public School System which had existed long before the initiation of the project. It proved to be significant that three members of the project staff were formerly employed by the Detroit Public Schools.

The unique contribution of the Detroit Public School System was that it provided an opportunity for the Fellows to field test newly developed instructional materials and to refine instructional methodologies.

Two of the primary objectives of the 1968-69 Experienced Teacher Fellowship Program (ExTFP) at Wayne State University were to: 1) field test methods and materials being developed for specific teaching situations in Detroit's inner-city high schools, and 2) gain first-hand experiences relevant to the problems and issues that relate to teaching in the inner city. In conjunction with selected Detroit Public Schools, industrial education teachers and a small group of their respective students worked with the twenty-four Fellows to experiment with micro-teaching as a method for upgrading teaching skills and refining selected lessons.

One of today's most effective tools in applying technology to the educational process is micro-teaching, when used as a diagnostic tool for the evaluation of individual teacher performance. This innovative approach provides the opportunity to video tape laboratory teaching experiences and then critique them for the purpose of improving classroom presentations. This critique was an important phase of the procedure since it provided the necessary evaluative procedures and constructive criticism essential to relevant pedagogy. Its greatest benefit results from individual teacher self-evaluation and appraisal.

RELATIONS WITH OTHER AGENCIES

The successful completion of a Fellowship Program, such as the ExTFP in industrial arts, requires cooperation and close working relationships with several agencies. In addition to the unique role of industry, the University, and the Detroit Public Schools, the U.S. Office of Education, professional organizations, and major divisions of the University assisted the WSU staff in conducting the project.

U. S. Office of Education

The scheduled meeting of new and previous ExTFP directors in New Orleans to discuss the problems of conducting such projects proved to be very helpful. This exchange of ideas helped the staff to avoid many of the pitfalls and to be better prepared to deal more effectively with the administrative aspects of the project. The general leadership by Donald Biglow and the divisional representatives, Paul Manchak and Muriel Tapman were of considerable value, especially in this early phase of the project. It was felt, however, that greater emphasis should be placed on specific details in carrying out the program. There was considerable concern expressed on this point by several of the directors at the meeting.

Throughout the program the cooperation and prompt response by Dr. Manchak's office in expediting the releases and forms aided the project staff to meet all deadlines. It was also throught his efforts, and that of Mrs. Tapman, that considerable insight was provided as to the

implementation, direction, and operation of the project. The working relationship with personnel from the U. S. Office of Education was also enhanced by their accessibility to the project staff. It was helpful, for example, for the staff to visit with personnel representing the U. S. Office of Education via the telephone, at workshops, and at national conventions.

Professional Organizations

Local, state, and national professional organizations provided numerous leadership development experiences for the Fellows. They not only became members of several associations, but became actively involved in many professional groups. For example, Jean Ansolabehere was vice-president of the Wayne State Industrial Education Guild, Bernard Y. Pershin represented the Fellows at the Michigan Occupational Education Association Convention, and Edwin Page and Renzo Ricciuti taped and participated in the New England Industrial Arts Teachers Association Convention.

The Fellows also became involved in the Fluid Power Society, American Industrial Arts Association, American Vocational Association, Michigan Industrial Education Society, and the WSU Industrial Education Guild. Through these opportunities, the Fellows gained considerable insight in various educational fields as they worked on committees, planned programs, and gave leaderships to many of the activities. Because of their efforts in the field and high academic achievement, all of the Fellows were invited to join the local chapter of Phi Delta Kappa.

The University

Beginning with the announcement of the ExTFP grant award and continuing through the conclusion of the project, the administration at WSU offered their enthusiastic interest and support. This was demonstrated through their willingness to provide a special facility for the project, active participation in scheduled events, and institutional support.

The staff members invited to participate in the project were encouraged to do so by their department heads throughout the University. The working relationships with these very competent staff members were extremely satisfying.

Two administrative divisions of the University became directly involved in the project. These were the Grants and Contracts Office and the Accounting Office. The support and advice from the personnel of these Offices were most helpful to the staff in conducting the instructional program.

THE FACILITIES

A wide variety of laboratory facilities were utilized during the program. The choice of combining University, industrial, and public school laboratories was considered to be the most productive way to meet the specific objectives of the project.

In the early phase of the program, the Fellows participated in courses conducted by industry in their in-plant laboratory facilities. The use of such facilities provided an opportunity for the Fellows to have "hands on" experiences on the most up-to-date equipment and materials. The group attending the Vickers Hydraulics School, for example, were able to conduct experimental equipment testing on hydraulic components. The industrial organization of the in-plant laboratories was considered also by the participants to be extremely valuable in viewing the operation of industrial training programs.

The four industrial schools attended by the participants were: (1) IBM Computer Center, (2) Ford Motor Company Manufacturing Plants, (3) Vickers Hydraulics School, and (4) Miller Fluid Power Institue have excellent facilities. As mentioned, the Fellows visited several Detroit area industries as scheduled plant tours, including the Joseph Lamb Co., U. S. Rubber, Wyandotte Chemical, and the Enrico Fermi Atomic Power Plant.

The laboratory facilities of the University included the

Computing and Data Processing Center, the Mechanical Engineering Laboratories, the Applied Management and Technology Center, and the laboratories in the Department of Industrial Education. Each of these were equipped to provide the technical background needed for the broad-based understandings and preparations essential for the implementation of the Galaxy Plan.

The study center provided exclusively for use by the Fellows (Room 4, College of Education) supplemented the other laboratories. It was equipped with duplicating equipment, typewriters, study carrels, a lounge, a library, a conference area, a drafting area, a variety of audio visual aids, and storage cabinets containing instructional supplies. The Fellows used this room extensively for the production of aids, class preparation, and demonstration-experimentation activities. This facility made it possible for the Fellows to meet in small groups and hold many informal discussions. They indicated that the provision of this center was a significant factor in the successful operation of the project.

In addition, the Fellows used the facilities of the Detroit Public Schools. Four inner-city schools were included and a total of eight shops became practical laboratories for the Fellows to field test the newly developed instructional materials. This arrangement with the Detroit Public Schools provided opportunities for the Fellows to participate in an on-going program utilizing the Galaxy Plan.

THE STAFF

Many persons became directly involved with the administration and instructional functions of this project. The executive committee responsible for the administrative aspects of the program included the Director, Dr. G. Harold Silvius; the Associate Directors, Mr. Harold S. Resnick, (Feb. 3, 1969-end of Project), and Dr. Leslie H. Cochran (start of Project-Feb. 1, 1969); Industrial Coordinator, Mr. Earl S. Mills; and Public Schools Coordinator, Mr. Roy W. Krause (Feb. 3, 1969-end of Project), and Mr. Harold S. Resnick (start of Project-Feb. 1, 1969). These staff members were also directly involved in the instructional phases of the project.

The twenty-four Fellows had the benefits of eleven regular full-time staff members and approximately twenty part-time teachers. These staff members were responsible for the scheduled courses and sessions. Ten national leaders also supplemented the instructional program as guest lecturers.

The participating staff was selected because of their special expertise and interest in teacher education, particularly as this preparation relates to industrial education. The cooperation and concerted efforts among the project staff members aided greatly in the success that was achieved. The ability of the staff to become involved with the Fellows in an informal manner contributed greatly to the outcomes of the program. For example, Drs. Abraham Citron and Leon Ofchus, the two professors involved in teaching the sociology and psychology courses, often team taught in an informal discussion seminar

with the Fellows. Dr. Henry R. Ziel, on post-doctoral leave from his position as Chairman of the Department of Vocational and Industrial Education, University of Alberta, Edmonton, Canada agreed to serve as the professor for IED 6187, Methods and Materials of Instruction. Prof. Karl Anderson of the Department of Mechanical Engineering provided additional laboratory time for experimentation, materials testing, and research.

The majority of the staff were selected prior to the start of the project. However, the Fellows were able to select some of the visiting staff members. This was another way of involving these Experienced Teachers in leadership development opportunities. These men were established national leaders in the field of industrial education. They included: Mr. William Mason, vocational director, Cleveland Public Schools; Dr. George Champion, San Francisco State College; Mr. Kenneth R. McLea, chairman, industrial arts department, Mission High School, San Francisco; Dr. Donald Hackett, University of Georgia, Dr. Jack Michie, Assistant Dean, Lanie College, Dr. Carl Schaeffer, Rutgers University; Dr. Willard Bateson, Wayne State University; Dr. Jerry Olson, Assistant Superintendent, Pittsburg Public Schools, and Dr. Jerome Moss, University of Minnesota.

The personal experiences of the Fellows was also utilized in providing special sessions directed by the Fellows on such topics as machinability of metals, non-destructive testing, and fluid power circuitry.

The enthusiasm and interest of the staff and Fellows were maintained as a result of the professional relationships that were fostered through group activities, team planning, seminar discussions, and informal meetings.

CONCURRENT EVALUATION

The purpose of the concurrent evaluation was to acquire feedback from the Fellows and staff in order that appropriate and desirable changes could be made to fulfill the objectives of the program.

The two major roles of the project evaluator were to: (1) develop the necessary instruments for an objective assessment of the on-going project, and (2) maintain close personal liaison with the Fellows. Of the two roles, the maintaining of close personal contacts and communications proved to be the more important. Since the evaluator was not directly responsible for the instructional aspects of the program, the Fellows were more free to discuss problems and make suggestions for improvement of the program. This open dialogue between a key staff member and the Fellows contributed to the constructive modifications made in the operational plan.

The evaluation instruments were designed to acquire information concerning the evaluation of formal activities. These instruments were used following particular activities, and included the rating of pre-program activities the orientation and briefing sessions, field trips, faculty assessments, and program evaluations at the end of each term by the Fellows and staff.

Pre-Program Activities

The pre-program activities evaluation instrument was designed to determine the effectiveness of initial contact procedures and arrangements in helping the Fellows get established in the Detroit area. The Fellows were also requested to give their general reaction and suggestions. The responses were favorable for all items. The following is a summary of the data compiled.

1. Response to initial inquiry
   - Outstanding 38%
   - Good 52%
   - Fair 10%
   - Marginal 0%
   - Poor 0%
   - No Progress 0%

2. Time allotment for submitting credentials
   - Outstanding 10%
   - Good 76%
   - Fair 10%
   - Marginal 5%
   - Poor 0%
   - No progress 0%

3. Notification of acceptance
   - Outstanding 67%
   - Good 33%
   - Fair 0%
   - Marginal 0%
   - Poor 0%
   - No Progress 0%

4. Descriptive material concerning the program
   - Outstanding 24%
   - Good 46%
   - Fair 29%
   - Marginal 0%
   - Poor 0%
   - No progress 0%

5. Descriptive material concerning the community
   - Outstanding 5%
   - Good 62%
   - Fair 24%
   - Marginal 5%
   - Poor 5%
   - No progress 0%

6. Descriptive material concerning the University
   - Outstanding 14%
   - Good 62%
   - Fair 14%
   - Marginal 5%
   - Poor 5%
   - No progress 0%

7. Descriptive material concerning the Unviersity services
   - Outstanding 19%
   - Good 43%
   - Fair 14%
   - Marginal 19%
   - Poor 5%
   - No progress 0%

8. Arrangements for housing

Outstanding	30%
Good	5%
Fair	25%
Marginal	20%
Poor	20%
No progress	0%

9. Arrangements for Pre-registration procedures

Outstanding	76%
Good	24%
Fair	0%
Marginal	0%
Poor	0%
No progress	0%

10. Arrangements for Pre-registration for Payroll

Outstanding	62%
Good	28%
Fair	5%
Marginal	0%
Poor	5%
No progress	0%

11. Notifications of Meetings

Outstanding	30%
Good	55%
Fair	15%
Marginal	0%
Poor	0%
No progress1	0%

12. Staff relation

Outstanding	26%
Good	53%
Fair	16%
Marginal	5%
Poor	0%
No progress	0%

The general reaction to the pre-session activities was favorable. The only negative reaction was too much time before classes started and the initial orientation. Some indicated that they were not satisfied with the housing, as indicated by the responses in number 8.

Briefing and Orientation Sessions

The briefing and orientation sessions evaluation instrument was designed to collect specific information on various functions of the program and to allow

opportunity for free responses. The results indicate a good overall appraisal of both sessions.

The briefing session evaluation instrument requested responses to seven different areas related to the session. The following is a summary of the results.

1. Notification of the session

Outstanding	32%
Good	63%
Fair	0%
Marginal	5%
Poor	0%
No progress	0%

2. Official welcome

Outstanding	26%
Good	58%
Fair	10%
Marginal	16%
Poor	0%
No progress	0%

3. Development and rationale of project

Outstanding	21%
Good	47%
Fair	21%
Marginal	5%
Poor	5%
No progress	0%

4. General objectives

Outstanding	17%
Good	45%
Fair	27%
Marginal	6%
Poor	0%
No progress	0%

5. Group organization

Outstanding	11%
Good	61%
Fair	17%
Marginal	11%
Poor	0%
No progress	0%

6. Functions of Room 4

Outstanding	22%
Good	67%
Fair	11%
Marginal	0%
Poor	0%
No progress	0%

7. Opportunity to ask questions

Outstanding	47%
Good	53%
Fair	0%
Marginal	0%
Poor	0%
No progress	0%

The orientation session was designed to introduce the members of the families of both the Fellows and the Staff. Therefore, an informal meeting was conducted and the objectives were rated by the Fellows as follows.

1. Notification of the session

Outstanding	53%
Good	42%
Fair	5%
Marginal	0%
Poor	0%
No progress	0%

2. General welcome

Outstanding	42%
Good	48%
Fair	10%
Marginal	0%
Poor	0%
No progress	0%

3. Introduction of the staff

Outstanding	26%
Good	63%
Fair	10%
Marginal	0%
Poor	0%
No progress	0%

4. Opportunity to get acquainted

Outstanding	42%
Good	53%
Fair	5%
Marginal	0%
Poor	0%
No progress	0%

5. Opportunity to ask questions

Outstanding	22%
Good	33%
Fair	33%
Marginal	11%
Poor	0%
No progress	0%

6. General setting and atmosphere

Outstanding	58%
Good	37%
Fair	5%
Marginal	0%
Poor	0%
No progress	0%

Program Evaluation

At the end of each term (Fall, Winter, and Spring), both the Fellows and the Staff were given an evaluation form to evaluate the program, students, and the staff. Each report was reviewed and changes initiated to improve conditions indicated as being deficient or below maximum effectiveness.

The instrument given to the Fellows covered five different areas: 1) knowledge and skills, 2) presentations, 3) organization, 4) effectiveness, and 5) emphasis and proportion. In addition, opportunity was given for free response. Due to the large amount of data, the information has been compiled into the following table. These data listed in the table for the first four sections are based on a five point scale.

5 Outstanding
4 Good
3 Fair
2 Marginal
1 Poor

	Quarters		
	Fall	Winter	Spring
Knowledge and Skills:			
Increase in content in the field.	3.6	4.1	4.1
Identification of essential content.	3.4.	4.0	3.9
Improved instructional methodology	2.5	3.9	3.6
Improved instructional media	3.6	3.5	3.7
Curriculum improvements and innovations	2.2	4.4	4.1
Presentations:			
By Departmental staff	3.5	3.6	4.0
By staff outside the Department	3.3	3.9	4.4
By guest speakers.	4.1	4.3	4.6
Conduct of laboratories, seminars, etc.	3.5	3.6	3.6
Choice of field trips	2.9	2.9	3.8
Conduct of field trips	3.9	3.1	3.9
Organizations:			
Library	3.5	3.7	4.1
Laboratory	3.1	3.7	3.8
Instructional Equipment.	3.8	3.8	3.9
Conference Area	3.9	3.9	4.2
Room 4 Operation	4.2	4.4	4.1
Exchange of Ideas outside the class.	3.7	3.5	3.9
Group Study.	3.0	3.0	3.6
Effectiveness:			
The program in general	3.7	3.9	4.6
Clearness of the objectives	3.2	3.3	3.9
In terms of your interests.	3.1	3.8	4.2
In respect to your expectations	3.1	3.6	3.9
Degree of improvement in teaching competency	2.8	3.6	3.7
Degree of improvement in methodologies.	2.9	3.5	3.8
Development of curriculum materials.	3.0	3.4	3.6

The purpose of the items listed in the following section was to obtain the Fellows' opinion on the relative amount of time apportioned for the activities listed. The rating is listed in a three point scale as follows:

1. too much time
2. about the right amount of time
3. not enough time

Emphasis and Proportion:

	QUARTER 1	2	3
a. Lectures	2.6	1.8	2.1
b. Audio-visual presentation	2.3	2.3	2.4
c. Group participation	2.1	2.3	2.3
d. Field trips	1.6	1.7	2.3
e. Individual study	2.4	1.9	2.0
f. Free time	2.4	2.2	2.1

The faculty members' role in the instruction was a crucial part in the success of the program. It was, therefore, determined that their perception of the Fellows and the impact of the program should be a part of the evaluation. At the end of the fall, winter, and spring quarters, each staff member active in the Program during that term was asked to give his opinion on the quality of the participants and the Program. The questions were carefully selected to avoid opinions that may be biased as a result of personal responsibility.

The faculty members were asked to compare the Fellows to regular graduate students in the following areas: 1) intellectual ability 2) industriousness, 3) seriousness of purpose, 4) commitment of the field, and 5) initiative. They were requested to rank the Fellows in each of these areas on a five point scale:

1. Decidedly inferior
2. Less capable
3. About the same
4. Outstanding
5. Superior

The Fellows were rated by the faculty above the average graduate students. They were particularly impressed with the Fellows industriousness, seriousness of purpose, commitment to the field,

and initiative. In general they rated the Fellows between outstanding and superior. The following is a summary of these data compiled for each quarter and the average for the year.

	QUARTER			
	1	2	3	Average
Intellectual ability	3.4	3.2	4.0	3.5
Industriousness	4.0	4.2	4.7	4.3
Seriousness of purpose	4.0	4.2	4.2	4.1
Commitment to the field	4.2	4.0	4.7	4.4
Knowledge of the field	3.2	3.3	4.0	3.5
Ability to communicate	3.4	3.5	3.2	3.4
Initiative	3.8	4.5	3.2	4.1

The second part of the questionnaire requested specific information concerning the functions of the Program. Faculty members were asked to give their opinion on how effective the Program was in involving the staff, and if the program would prepare the participants to become better teachers and scholars.

Were you adequately appraised of the purpose of the project?

54% yes
31% no
8% uncertain
8% no respone

Were you properly involved in the program?

54% yes
15% no
31% uncertain
0% no response

Did participants became better scholars?

54% yes
15% no
15% uncertain
15% no response

Will the participants be better teachers?

85% yes
0% no
8% uncertain
8% no response

Is this a valuable method of updating practicing teachers?

92% yes
0% no
8% uncertain
0% no response

Was this helpful to the instructor?

85% yes
0% no
0% uncertain
15% no response

In summary, responses by the faculty and Fellows to the questions on the evaluation instruments were strongly positive. Their reaction to the Program indicated that it was a very interesting experience. The faculty felt that the students had grown significantly as a result of the Program both in scholarship and in ability to teach.

FOLLOW-UP EVALUATION

The most valid evaluation of the success of an educational program is the measurement of the change that takes place in the participants as they attempt to implement their newly acquired skills. To measure the changes that have taken place in the ExTFP participants, a close contact will be maintained with each Fellow, and pertinent information concerning his professional development will be recorded. Several activities will be scheduled throughout the coming year (1969-70). These will include correspondence and personal contacts.

A questionnaire designed to obtain information concerning the type of changes that have taken place in each individual's professional life will be sent to the Fellows at the end of each semester in the 1969-70 academic year. The areas to be measured will include: 1) curriculum development; 2) increased leadership activities within the school system (committee membership, promotions, etc.); 3) increased leadership activities on the state or national level (officer in state association, attendance at national conventions, etc.); and 4) change in position outside of former school system.

Personal contacts will be made, wherever possible, at the national conventions. For example, a breakfast has been scheduled at the American Vocational Association in Boston, December 10, 1969. A similar meeting will be planned for the American Industrial Arts Association convention in Louisville, Kentucky in April, 1970.

The meeting in Boston will include those Fellows from the East, while the one in Louisville will be planned for participants from the South. In addition, a third meeting will be planned for West Coast participants, to be held in the late spring or early summer of 1970.

The purpose of these meetings is twofold. First, the Fellows will have an opportunity to exchange ideas for implementation, and materials developed so that duplication of efforts can be avoided. Second, on the basis of a year's experience after the Program, the Fellows will be asked to make recommendations for future ExTFP programs, to increase their effectiveness.

The results of this follow-up evaluation will be published as a subsequent report.

PART III: CONCLUSIONS

THE PROGRAM IN RETROSPECT

The evaluation of innovative programs planned, conducted, and revised, continually reveals strengths and the weaknesses. Both formal and informal methods of assessment were relied upon to detect the successes and failures of this Fellowship Program. Appraisals by the Fellows, Project staff, and instructional staff were used throughout the year to determine the effectiveness of the Project. Evaluative instruments, periodic reports, and discussions were employed in this task.

Desirable Outcomes

Several aspects of this year's program were altered as a result of the evaluation of the 1967-68 ExTFP. It was found that these changes caused a marked improvement in the interpersonal relationships between the Fellows, and Fellows and staff, in the very early phases of the project.

The single most important revision was concerned with a carefully conducted orientation. This orientation was initiated immediately following selection of the Fellows. News releases, informative material about Detroit, and descriptive material about the Project, were sent to the Fellows throughout the summer to set the stage for early rapport between the Fellows and staff. Upon arrival, key staff members for the Project assisted each family in locating housing, and providing information concerning living in the Detroit area. In addition to a series of field trips

designed to acquaint the Fellows with industrial Detroit, social events were provided to bring all the families and staff together. This culminated in a Saturday afternoon orientation session prior to the formal start of classes.

This initial concern for team rapport and involvement was further facilitated through the en bloc treatment received by the Fellows. It was observed that the specially assigned learning center contributed by the College of Education greatly enhanced group discussion, instruction, and effort in conducting the formal and social activities. As a result of the en bloc treatment, the participants developed a cohesiveness and team spirit in their approach to the assigned tasks.

The central focus in the organizational structure of the program was to provide the participants with an opportunity for personal involvement and leadership development. For example, the Fellows planned and conducted the Third Annual Industrial Education Conference at WSU, as well as the curriculum development sessions. In the latter, they selected, invited, and hosted seven national leaders in industrial education and several representatives from industry. Their participation in other professional activities, such as attending state and national conventions, contributing articles to professional journals, and serving a team of editors for the publication of the Industrial Education Guild News at WSU, all reflect the nature of their personal involvement.

From the outset of the program a team approach was used to utilize the strengths of the staff and Fellows. The enthusiasm generated by

this team approach, Fellows and staff working together, contributed to stimulating discussions, critical evaluations, and the quality of instruction. For example, near the end of the program the participants provided technical demonstrations for the benefit of other participants and staff through their micro-teaching experiences. Another example of this team approach was illustrated in the development of class projects, research efforts, and co-authorship of magazine articles.

To assist the Fellows in implementing a broad-based approach to occupational education, sets of packages were designed and developed by the Fellows, and then duplicated and distributed. These packages represented a team approach in their development. For example, three Fellows in Energy and Propulsion developed sets of single concept film loops for hydraulics. In Materials and Processes, all Fellows contributed to a sound-syncronized presentation for the plastics industry. The project was later edited and coordinated by one of the Fellows in the group.

Operational Problems

In a Program of this nature, even with the pre-planning by the project staff, several operational problems will be encountered. The nature of the problems were such that they required sensitivity on the part of the Project staff in identifying them, and then attempting to resolve the issues.

One of the early problems encountered was that of adequate parking facilities. Like most urban universities, WSU is located in the

inner city and land is at a premium. Parking facilities are available to WSU staff, and some facilities exist for students. However, the charge for student parking became excessive, especially as Fellows often needed to come and leave several times a day.

An attempt was made to acquire parking passes for the Fellows, but this was impossible due to a lack of facilities even for staff. The arrangement that ultimately prevailed was the establishment of a car pool for groups of Fellows.

A common problem confronting the Project staff was dealing with psychological adjustments of the participants. Reorientation problems posed by a change of residence, friends, and the role of a teacher to a full-time graduate student resulted in considerable pressures. This pressure often resolved itself in the formation of cliques among several Fellows of the same age group, geographical representation, and philosophical outlook. Several times during the program this clique formation resulted in conflict between the groups.

The solution to this problem was found in informal sessions in which all Fellows expressed their feelings openly. It is hoped that the future resolution to this problem can be found through a greater emphasis during orientation on the need for sensitivity of all persons involved. An attempt should be made to achieve this through discussion of each Fellow's background and experiences prior to the inception of formal classes.

The staff soon recognized that they needed to give attention to these matters. Individual conferences were arranged and several staff members were assigned the responsibility for assisting participants with their personal difficulties. It helped, also, to have the Fellows involved in planning sessions and staff meetings.

Observations

The important observations made in the total operation of the program were: (1) that the en bloc treatment provided for group identification and cohesiveness, and also, enabled the staff to schedule tailor-made courses to meet the needs of the group; (2) the provision for leadership development opportunities stressed throughout the program contributed significantly to the participants' professional growth and development; and (3) the interest and cooperation of the local schools, industries, and the administration of the University contributed significantly to the success of the program.

The purposes of the program were accomplished through the combined efforts of the project staff, participants, and community resource personnel. Establishing a good esprit de corps early through the greater emphasis on an increased orientation phase, strengthened the operational base. The participants' constructive and enthusiastic attitudes became cumulative as the project progressed and in turn were instrumental in improving the instructional program. As the program got under way, there was increased emphasis placed upon the utilization of the participants' experiences and competencies. Their diversified background and the exposure to a wide variety of academic

and industrial experiences during the program strengthened their technical and pedogogical competencies.

As a result of the experiences gained from conducting this Experienced Teacher Fellowship Program, the following changes have been planned for the Fellows who will be participating in the 1969-70 ExTFP at Wayne State University.

1. The first four weeks of the initial research seminar will be devoted to an extensive orientation so that the Fellows will see the contribution of each aspect of the Program to the totality. In addition, some aspects of the Program may be altered at this time to meet the unique need of the Fellows.

2. A greater emphasis will be placed on utilizing the background of each Fellow early so that they can "teach one another."

3. The curriculum development phase of the Program will be integrated with the Department of Instructional Technology and the Fellows will immediately begin to develop and field-test lessons through micro-teaching situations in Detroit's inner-city high schools.

4. Greater focus will be placed on the development and field testing of instructional materials, so the newly acquired concepts can be integrated into experimental and on-going programs. An attempt will be made to have all the Fellows integrate their efforts into a total package with curriculum implications on a national level.

APPENDIX A

This Appendix includes the following information:

APPENDIX

A - 1 Experienced Teacher Fellowship Program Participants

A - 2 Data from Measurement Research Center of Iowa

A - 3 Evaluation and Screening Forms

A - 4 Form Letters

A - 5 Publicity Brochure

A - 6 Staff Directory

APPENDIX A - 1

EXPERIENCED TEACHER FELLOWSHIP PROGRAM PARTICIPANTS

Name and Pre-Program Home Address	Pre-Program School Address	Post-Program School Address
Stanley Amyx 5500 Rainbow Drive Greendale, Wisconsin 53129	A. G. Bell Jr. High School 6506 W. Warnimont Avenue Milwaukee, Wisconsin 53220	A. G. Bell Jr. High School 6505 W. Warnimont Avenue Milwaukee, Wisconsin 53220
J. Maurice Ansolabehere 1712 49th Street Sacramento, California 95819	John F. Kennedy Sr. High 6715 Gloria Drive Sacramento, Calif. 95831	John F. Kennedy Sr. High 6715 Gloria Drive Sacramento, Calif. 95831
Michael P. Bjur Rt. 1, Box 70 Ridgefield, Washington 98642	Kelso High School 8th & Church Kelso, Washington 98626	Kelso High School 8th & Church Kelso, Washington 98626
Paul Buckhaulter 183 Crystal Lake Drive Pontiac, Michigan 48053	Eastern Jr. High School 25 South Sanford Pontiac, Michigan 48058	Eastern Jr. High School 25 South Sanford Pontiac, Michigan 48058
Nicasio Capeles Cruz 107 Santiago Ingelesias Pantin San Lorenzo, Puerto Rico 00754	Humacao Vocational School Humacao, Puerto Rico 00661	Humacao Vocational School Humacao, Puerto Rico 00661
Robert Cokinda 2843 Rambling Way Bloomfield Hills, Mich. 48013	Mumford High School 17525 Wyoming Detroit, Michigan 48221	Mumford High School 17525 Wyoming Detroit, Michigan 48221
Dean Cornwell 12107 W. Woodland Wauwatosa, Wisconsin 53226	Wilbur Wright Jr. High 8400 W. Burleigh Street Milwaukee, Wisconsin 53222	John Marshall Jr. Sr. High School Milwaukee, Wisconsin 53222
Albert W. Dahlberg 31160 Dolly Madison Drive Madison Heights, Mich. 48071	Lamphere High School 610 W. Thirteen Mile Rd. Madison Heights, Mich. 48071	Admissions Counselor Wayne State University Detroit, Michigan 48202

APPENDIX A - 1 (cont.)

EXPERIENCED TEACHER FELLOWSHIP PROGRAM PARTICIPANTS

Name and Pre-Program Home Address	Pre-Program School Address	Post-Program School Address
Arthur Deane 3149 Allentown Rd. Lima, Ohio 45807	Jefferson Elementary 1231 N. Euclid Avenue Dayton, Ohio	Dept. of Industrial & Vocational Education University of Alberta Edmonton, Alberta, Canada
Roy Graham 7642 Harris Street Shreveport, Louisiana 71106	Eden Gardens Jr.-Sr. High 7600 Cornelious Lane Shreveport, Louisiana 71106	Eden Gardens Jr.-Sr. High 7600 Cornelious Lane Shreveport, Louisiana 71106
Larry Hagmann 41-037 Hilu Street Waimanalo, Hawaii 96795	Kailua High School 451 Ulumanu Drive Kailua, Hawaii 96734	Kailua High School 451 Ulumanu Drive Kailua, Hawaii 96734
Alsce Johnson Jr. 157 Glover Street Orangebury, South Carolina 29115	Washington Central High Gorden Street Washington, Georgia 30673	Washington Central High Gorden Street Washington, Georgia 30673
John E. I. Jordan Jr. 2225 Lowe Street Macon, Georgia 31204	Ballard-Hudson Senior High 1070 Anthony Road Macon, Georgia 31201	Mark A. Smith High School 1640 Upper River Road Macon, Georgia
Gary Tyler Kyte Route 1, Box 17 BB Beulah, Colorado 81023	Pitts Jr. High School 29 Lehigh Pueblo, Colorado 81002	Centennial High School Eleventh and Court Pueblo, Colorado 81003
Edward Moomaugh Box 303 Steilacoom, Washington 87388	Stadium High School 111 North "E" Street Tacoma, Washington 98304	Stadium High School 111 North "E" Street Tacoma, Washinton 98304
Edwin Page 131 Juniper Drive Norwood, Massachusetts 02062	Walpole High School Common Street Walpole, Massachusetts	Walpole High School Common Street Walpole, Massachusetts

APPENDIX A - 1 (cont.)

EXPERIENCED TEACHER FELLOWSHIP PROGRAM PARTICIPANTS

Name and Pre-Program Home Address	Pre-Program School Address	Post-Program School Address
Bernard Pershin 14151 Oak Park Blvd. Oak Park, Michigan 48237	none	Oak Park High School Oak Park Blvd. Oak Park, Michigan 48237
Thomas Platt Route 1, Box 188 Sparks, Nevada 89431	Sparks High School 820 15th Street Sparks, Nevada 89431	Proctor Hug High School 2880 Sutro Street Reno, Nevada 89502
Renzo A. Ricciuti 30 Nash Road So. Weymouth, Mass. 02190	Newton High School 453 Walnut Street Newtonville, Mass. 02160	Newton High School 453 Walnut Street Newtonville, Massachusetts 02160
Eugene J. Simms 1129 Genoa Drive Santa Ana, California 92704	Santiage High School 12342 Trask Garden Grove, California 92640	Ferndale High School Pinecrest Road Ferndale, Michigan 48220
D. Brent Stephens 1363 E. 2600 N. North Ogden, Utah 84404	James Madison High School 2735 NE 82nd Avenue Portland, Oregon 97220	Columbia River High School 800 N.W. 99 Street Vancouver, Wash. 98665
Donald Stewart 1411 Earlham Drive Dayton, Ohio 43952	Wintersville High School 200 Park Drive Wintersville, Ohio 43952	Colonel White High School 501 Niagara Avenue Dayton, Ohio 45405
Dougalss Williams c/o Ben Tarrell 925 Linden Parkway Boise, Idaho 83706	Capital High School 8055 Goddard Boise, Idaho 83704	Capital High School 8055 Goddard Boise, Idaho 83704
Robert Wren 8048 Dema Drive Des Moines, Iowa 50315	Kurtz Junior High School S.W. 12th & Porter Des Moines, Iowa 50315	Kurtz Junior High School S.W. 12th & Porter Des Moines, Iowa 50315

APPENDIX A - 2 - 50 -

U. S. OFFICE OF EDUCATION
Division of Educational Personnel Training
(FY 1968 Programs)

STATISTICAL REPORT

☐ on Participants (N=_____)
☒ on Non-Enrolled Applicants (N=121)

☒ NDEA Institute
☐ Arts & Humanities
☐ Experienced Teacher Fellowship Program

Institution: WAYNE STATE UNIVERSITY
Subject Field: EXPERIENCED TEACHER FELLOWSHIP PROGRAM
State Code: MICH OE Code: 17-37
Director: DR. G. HAROLD SILVICES

1. SEX:

Male	Female	NR
119	1	1

2. AGE:

under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 & over	NR
17	26	33	19	11	10	4			1

3. HIGHEST DEGREE:

_____ None	_____ Professional Diploma
101 Bachelor's	_____ Doctor's
20 Master's	_____ NR

4. MAJOR IN SUBJECT FIELD*:

	Yes	No	NR
a. Undergraduate:	104	13	4
b. Graduate:	21	51	49

5. ATTENDED ONE OR MORE PREVIOUS NDEA OR ARTS & HUMANITIES INSTITUTES:

Yes	No	NR
14	104	3

6. YEARS OF TEACHING OR RELATED EMPLOYMENT:

	None	1-4	5-9	10-14	15-19	20 or more	NR
a. Total years:	_____	35	38	32	11	5	_____
b. Years in field*:	1	39	38	22	10	6	5

7. PRESENT EMPLOYMENT (at the time of application):

- 109 In a single school (secondary, elem., or pre-school)
- 7 In a number of schools, or at the system level
- 1 Employed by an institution of higher education
- _____ Full-time college student
- 1 Not employed at (or attending) a school or college
- 3 NR

IF EMPLOYED IN A SCHOOL, SYSTEM, OR COLLEGE (for items 8, 9, 10, & 11):

8. TYPE OF SCHOOL, SYSTEM, OR COLLEGE:

- 119 Public
- _____ Private, church-related
- _____ Private, not church-related
- 2 NR

9. ENROLLMENT (if a single school):

1 1-199	14 800-999	7 1600-1799
2 200-399	14 1000-1199	10 1800-1999
9 400-599	6 1200-1399	28 2000 & over
8 600-799	10 1400-1599	12 NR

10. PRESENT ASSIGNMENT: PER CENT OF TIME SPENT AS A TEACHER AND/OR SPECIALIST IN THE SUBJECT FIELD * OF THE INSTITUTE OR PROGRAM:

4 0%	_____ 20-29%	3 50-59%	7 80-89%
_____ 1-9%	1 30-39%	2 60-69%	95 90-100%
_____ 10-19%	_____ 40-49%	3 70-79%	6 NR

11. GEOGRAPHIC DISTRIBUTION OF SCHOOL, SYSTEM, OR COLLEGE:

1 ALA	1 D C	1 KY	4 MISS	2 N Y	1 R I	3 WASH
2 ALAS	4 FLA	1 LA	1 MONT	1 N D	2 S C	1 WIS
1 ARIZ	4 GA	1 ME	1 NEBR	10 OHIO	5 TENN	2 P R
18 CAL	1 IDA	9 MASS	1 N H	1 OKLA	1 TEX	1 NR
1 COLO	3 ILL	9 MICH	8 N J	4 OREG	1 VT	
3 CONN	2 KANS	3 MINN	1 N M	4 PA	1 VA	

IF EMPLOYED BELOW THE COLLEGE LEVEL (for items 12, 13, & 14):

12. LEVEL OF SCHOOL OR SYSTEM:

- _____ Pre-school
- _____ Pre-school & elem.
- 1 Elementary
- 38 Junior High
- 55 Senior High
- 18 Junior/Senior High
- 4 Elem. & secondary
- 5 NR

13. LOCATION OF SCHOOL OR SYSTEM:

- 43 In a city of 250,000 or more population
- 7 In a suburb of such a city
- 28 In a city of 50,000 to 250,000 population
- 3 In a suburb of such a city
- 23 In a city or town of 2,500 to 50,000 population
- 1 In a suburb of such a city or town
- 7 In a city or town of less than 2,500; or in a rural area
- 9 NR

14. STUDENT BODY OF SCHOOL IN TERMS OF (A) PER CENT OF NON-WHITE AND (B) PER CENT FROM FAMILIES MARKED BY ECONOMIC POVERTY:

A. Non-white		B. Poverty	
12 0%	4 50-59%	2 0%	5 50-59%
20 1-9%	1 60-69%	17 1-9%	9 60-69%
15 10-19%	_____ 70-79%	23 10-19%	4 70-79%
13 20-29%	4 80-89%	21 20-29%	4 80-89%
8 30-39%	31 90-100%	13 30-39%	9 90-100%
6 40-49%	7 NR	7 40-49%	7 NR

* In the subject field of the Institute or Program

NR means non-response; this category also includes inaccurate or unusable responses.

APPENDIX A - 2

U. S. OFFICE OF EDUCATION
Division of Educational Personnel Training
(FY 1968 Programs)

STATISTICAL REPORT

XX on Participants (N= 24)
☐ on Non-Enrolled Applicants (N=)

XX NDEA Institute
☐ Arts & Humanities
☐ Experienced Teacher Fellowship Program

Institution: WAYNE STATE UNIVERSITY
Subject Field: EXPERIENCED TEACHER FELLOWSHIP PROGRAM
State Code: MICH OE Code: 17-37
Director: DR. G. HAROLD SILVICES

1. SEX:

Male	Female	NR
24		

2. AGE:

under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 & over	NR
4	8	6	3	2		1			

3. HIGHEST DEGREE:

None	Professional Diploma
24 Bachelor's	Doctor's
Master's	NR

4. MAJOR IN SUBJECT FIELD*:

	Yes	No	NR
a. Undergraduate:	22	1	1
b. Graduate:	3	7	14

5. ATTENDED ONE OR MORE PREVIOUS NDEA OR ARTS & HUMANITIES INSTITUTES:

Yes	No	NR
6	18	

6. YEARS OF TEACHING OR RELATED EMPLOYMENT:

	None	1-4	5-9	10-14	15-19	20 or more	NR
a. Total years:		9	9	3	2	1	
b. Years in field*:	1	9	9		2	1	2

7. PRESENT EMPLOYMENT (at the time of application):

- 20 In a single school (secondary, elem., or pre-school)
- 2 In a number of schools, or at the system level
- Employed by an institution of higher education
- 2 Full-time college student
- Not employed at (or attending) a school or college
- NR

IF EMPLOYED IN A SCHOOL, SYSTEM, OR COLLEGE (for items 8, 9, 10, & 11):

8. TYPE OF SCHOOL, SYSTEM, OR COLLEGE:

I-51
- 23 Public
- Private, church-related
- Private, not church-related
- 1 NR

9. ENROLLMENT (if a single school):

2 1-199	4 800-999	2 1600-1799
200-399	4 1000-1199	1800-1999
400-599	3 1200-1399	5 2000 & over
600-799	2 1400-1599	2 NR

10. PRESENT ASSIGNMENT: PER CENT OF TIME SPENT AS A TEACHER AND/OR SPECIALIST IN THE SUBJECT FIELD * OF THE INSTITUTE OR PROGRAM:

2 0%	1 20-29%	50-59%	80-89%
1-9%	30-39%	60-69%	17 90-100%
10-19%	40-49%	1 70-79%	3 NR

11. GEOGRAPHIC DISTRIBUTION OF SCHOOL, SYSTEM, OR COLLEGE:

2 CAL	1 LA	2 WASH
1 COLO	2 MASS	2 WIS
2 GA	3 MICH	1 P R
1 HAWA	1 NEV	1 NR
1 IDA	2 OHIO	
1 IOWA	1 OREG	

IF EMPLOYED BELOW THE COLLEGE LEVEL (for items 12, 13, & 14):

12. LEVEL OF SCHOOL OR SYSTEM:

- Pre-school
- Pre-school & elem.
- Elementary
- 5 Junior High
- 15 Senior High
- 1 Junior/Senior High
- 2 Elem. & secondary
- 1 NR

13. LOCATION OF SCHOOL OR SYSTEM:

- 5 In a city of 250,000 or more population
- 1 In a suburb of such a city
- 12 In a city of 50,000 to 250,000 population
- 1 In a suburb of such a city
- 2 In a city or town of 2,500 to 50,000 population
- In a suburb of such a city or town
- In a city or town of less than 2,500; or in a rural area
- 3 NR

14. STUDENT BODY OF SCHOOL IN TERMS OF (A) PER CENT OF NON-WHITE AND (B) PER CENT FROM FAMILIES MARKED BY ECONOMIC POVERTY:

A. Non-white		B. Poverty	
1 0%	1 50-59%	1 0%	50-59%
7 1-9%	2 60-69%	7 1-9%	60-69%
2 10-19%	70-79%	6 10-19%	3 70-79%
4 20-29%	80-89%	2 20-29%	1 80-89%
2 30-39%	4 90-100%	2 30-39%	90-100%
40-49%	1 NR	1 40-49%	1 NR

* in the subject field of the Institute or Program

NR means non-response; this category also includes inaccurate or unusable responses.

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APPENDIX A-3

EVALUATION AND SELECTION TEAM

Dr. G. Harold Silvius, Project Director
Address: 201 East Kirby, Detroit, Michigan 48202
Phone: 872-7776

Dr. William D. Wolansky, Associate Director for 1967-68 ExTFP
Address: 3785 Brewster Road, Dearborn, Michigan 48201
Phone: 582-3878

Dr. Leslie H. Cochran, Associate Director for 1968-69 ExTFP
Address: 9216 Prevost, Detroit, Michigan 48228
Phone: 838-8169

Harold S. Resnick, Associate Director for 1968-69 ExTFP
Address: 23071 Kipling, Oak Park, Michigan 48237
Phone: 548-6568

Ferd Hall, Evaluation Coordinator
Address: 16645 Baylis Avenue, Detroit, Michigan 48221
Phone: 862-9172

Project Evaluators (members of the 1967-68 ExTFP)

Orin L. Buchleiter
4217 Douglas MacArthur, N.E.
Albuerque, New Mexico 87110

William W. Davison
305 Jackson
Hugoton, Kansas 67951

Edwin A. Gray
2124 N. 7th Street
Terre Haute, Indiana 47804

E. Lyman Munford
P.O. Box 26
Parowan, Utah 84761

Thomas P. Olivo
169 Rosemont Street
Albany, New York 12206

Robert L. Serenbetz
217 Delaware Road
Kenmore, New York 14217

APPENDIX A-3 (cont.)
FELLOWSHIP ANALYSIS FORM
EXPERIENCED TEACHER FELLOWSHIP PROGRAM

NAME_____ GALAXY_____

Qualification Categories	Points
A. Overall Honor Point Average (undergraduate-taken from transcript) (A=4, B=3, _____ x 8 = 0 - 32)	_____ (32 possible)
B. Upper Division Honor Point Average (last two years of undergraduate work) (taken from transcript) _____ x 4 = 0 - 16	_____ (16 possible)
C. Supporting and Related Work	
Mathematics _____ (4 max.)	
Physical Science _____ (4 max.)	
Professional Courses in IA _____ (3 max.)	
Industrial School Experiences _____ (2 max.)	
Workshop and Institutes (in IE) _____ (2 max.)	
Content Courses:	
Materials and Processes _____ (5 max.) or Energy and Propulsion	
Total Courses _____	
Conversion Table:	
15 - 20 Courses = 10 points	
12 - 14 Courses = 7 points	
9 - 11 Courses = 4 points	
6 - 8 Courses = 2 points	_____ (10 possible)
D. Nature and Extent of Teaching Experiences	
Years - IA teaching: 3 or more - 5 points; 2 years - 3 points; 1 year - 1 point	Years - High School IA: 3 or more - 5 points; 2 years - 3 points; 1 year - 1 point
Sub Total_____ + Sub Total_____	_____ (10 possible)

APPENDIX A-3 (cont.)
FELLOWSHIP ANALYSIS FORM
EXPERIENCED TEACHER FELLOWSHIP PROGRAM

NAME_____ GALAXY_____

Points

Qualification Categories:

E. Nature and Extent of Industrial Work Experience

1. Length of Service in Industry
   5 or more years = 4 points
   2 - 4 years = 2 points
   1 year = 1 point

2. Applicability of Industrial Experience to Galaxy 0 - 6 points _____

(10 possible)

F. Ability in Written Communication

1. Ability to Express Ideas 0 - 10 points _____

2. Mechanics of Writing 0 - 3 points _____

3. Publications 0 - 2 points _____

(15 possible)

G. Potential for Teaching and Leadership

Recommendations

Strong = 4
Good = 3
Average = 2
Poor = 0 - 1

_____

(4 possible)

H. Other Qualifying Characteristics

Professional Memberships
Leadership Activities
Significant Contributions 0 - 3 points

Comments: _____

_____

_____

_____

(3 possible)

SELECTED FORM LETTERS

WAYNE STATE UNIVERSITY
COLLEGE OF EDUCATION
DETROIT, MICHIGAN 48202

DEPARTMENT OF INDUSTRIAL EDUCATION

We are pleased to learn of your interest in our Experienced Teacher Fellowship Program for 1968-69. Enclosed are the application forms which must be completed and postmarked no later than April 14, 1968. This includes the following items:

1. Application for Admission (OE 4401)
2. Application Record Card (OE 4402)
3. Application for Graduate Permit to Register (MSA 1553)
4. College Transcripts
5. Autobiographical Statement (400-word maximum)
6. Letter of Recommendation from department head or principal)

In the autobiographical statement, mention your overall grade point average; specific college courses you have had in mathematics, science, and technical subjects; the nature and extent of related industrial work experience; teaching experience; and authorship (if any). Finally, what provisions will be made to incorporate the new materials into your present curriculum?

Please send all completed materials, transcripts, and requests for further information directly to: Leslie H. Cochran, 221 College of Education, Wayne State University, Detroit, Michigan 48202.

Sincerely,

Leslie H. Cochran
Associate Director

Enclosures
LHC:mrt

WAYNE STATE UNIVERSITY

COLLEGE OF EDUCATION

DETROIT, MICHIGAN 48202

DEPARTMENT OF INDUSTRIAL EDUCATION

This letter will confirm our telegram notifying you of your selection as a participant in the 1968-69 Experienced Teacher Fellowship Program at Wayne State University.

As stated in the telegram, it is necessary that you notify Mr. Leslie H. Cochran, Associate Director by letter of your acceptance of this program. This letter and enclosed Application for a Stipend (OE 4404) must be postmarked on or before May 5, 1968. If you are unable to participate in the program, we will then select an alternate Fellow from the same geographical section of the country.

In the near future a package of materials will be sent to you which will provide you with additional information.

Congratulations, again, on your acceptance to the program. We hope you will be able to participate and look forward to having you with us next year.

Sincerely,

G. Harold Silvius
Project Director

GHS:mrt

Enclosures

WAYNE STATE UNIVERSITY

COLLEGE OF EDUCATION DETROIT, MICHIGAN 48202

DEPARTMENT OF INDUSTRIAL EDUCATION

There were approximately eight hundred applicants who submitted their credentials for evaluation to the screening committee. From this large number, twenty-four participants have been selected, for our Experienced Teacher Fellowship Program. In addition, the selection committee has identified eight alternates for the nation. I am happy to report that you have been selected as an alternate.

We hope that you will accept this stand-by status, with the understanding that you will be notified if a vacancy should occur. Please provide Mr. Leslie H. Cochran, Associate Director with the following:

1) A letter of acceptance for alternate status.

2) The enclosed Application for Stipend Form (OE 4404).

This items should be postmarked no later than May 5, 1968.

We will inform you by telephone, to be followed by letter, if an opening occurs.

Sincerely,

G. Harold Silvius
Project Director

GHS:mrt

Enclosures

SELECTED FORM LETTERS

WAYNE STATE UNIVERSITY

COLLEGE OF EDUCATION DETROIT, MICHIGAN 48202

DEPARTMENT OF INDUSTRIAL EDUCATION

We regret to inform you that we are not able to accept you as a Fellow in our Experienced Teacher Fellowship Program at Wayne State University inasmuch as your credentials were not complete at the time of selection. As you may note in the brochure, the deadline date for credentials was April 6, and an extra week was allowed for those materials that may have taken extra time in processing through the mail. However, at the time of selection, there were too many items missing from your file to make a total evaluation possible.

We thank you for your interest in our Experienced Teacher Fellowship Program. Should we be successful in having a funded Fellowship Program next year, we hope that you will apply and possibly be successful in being selected.

Sincerely yours,

G. Harold Silvius
Project Director

GHS:mrt

APPENDIX A - 5

PUBLICITY BROCHURE

APPENDIX A - 6

STAFF DIRECTORY

Name		
Anderson, Karl O.	(M E 0511) Engg. Mechanical Engineering	4855 Fourth
Aronson, Robert	(IED 5170 Educ. Electronics	Mumford High School Detroit, Michigan
Brown, Arthur	(EHP 7601) Educ. History & Philosphy	399 Education Building
Burford, Thomas E.	(I T 5762) Educ. Instructional Technology	229 Education Building
Citron, Abraham F.	(EDS 6628) Educ. Sociology	267 Education Building
Cochran, Leslie H. (Assoc. Dir.-Jan.68-Jan.69)	(IED 7187) Educ. Research Seminar	214 Education Building
Foner, Ezra K.	(IED 6170) Educ. Plastic-AMTC	23884 Rutland Southfield, Michigan
Krause, Roy W. (Public Schools Coordinator)	Public Schools Coordination	214 Education Building
Mills, Earl S. (Industrial Coordinator)	(IED 6170) Educ. Industrial School Experiences	213 Education Building
Nagohosian, John	(IED 6173) Educ. Electronics	Henry Ford Community College Dearborn, Michigan
Novosad, John	(IED 5170) Educ. Electronics	Ling-Temco Vought, Inc. Warren, Michigan
Ofchus, Leon T.	(EDP 5740) Educ. Psychology	333 Education Building
Resnick, Harold S. (Assoc. Dir.-Jan.69-end of Project)	(IED 7189) Educ. Terminal Masters Seminar	214 Education Building
Silvius, G. Harold (Director)	(IED 6185) Educ. Organizing Course Materials	215 Education Building
Ziel, Henry R.	(IED 6187) Educ. Methods and Materials	University of Alberta Edmonton, Canada

APPENDIX B

OPERATIONAL BUDGET

ExTFP Grant (302-1617) 24 Fellowships $2,500 per Fellow	$60,000
1) Tuition and Fees Graduate (State and out-of-state fees)	40 percent
2) Instructional Staff Salary and Benefits-Associate Director Coordinators, and special supporting staff	25 percent
3) Secretarial and Clerical Staff Salary and Benefits for Secretaries, and Technicians	10 percent
4) Printing and Publishing Publicity brochures, and final report	2 percent
5) Honoraria Educational Consultants and Cooperating Detroit Public School Teachers	5 percent
6) Travel Directors and Staff Visits to Conferences, Workshops, and Local Schools; and Consultants Expenses	5 percent
7) Equipment Purchased Small hand tools, replacement parts, and instructional aids	2 percent
8) Supplies - office Stationary, stamps, office equipment, Rental and General Supplies	2 percent
9) Supplies - Instructional Transparencies, audio and visual tapes, programmed instruction materials, films, instructional aids	7 percent

10)	Conference Activities Rental of Conference Space, Equipment, and Materials	1 percent
11)	Library Materials Periodicals, reference books, and technical brochures	1 percent